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THE INFLUENCE OF LEARNING MOTIVATION ON BASIC CONCEPTS OF NATURAL SCIENCES 2 LEARNING OUTCOMES

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Abstract:
The objective of this study is to explore the influence of learning motivation on students' learning outcomes in Basic Concepts of Natural Sciences 2. This survey research was conducted in the Department of Elementary Teacher Education, Faculty of Education, Universitas Negeri Gorontalo. The data from questionnaires and evaluation tests were further analyzed by using descriptive and inferential analysis with *path analysis* approach. The population consisted of all 202 undergraduate students in the previously mentioned department; further, only 130 of them were selected as the research sample. The study finds that learning motivation directly and positively influences the learning outcomes of the students in the subject mentioned above. Such a finding indicates that students with high learning motivation are more likely to enhance their academic performance, thus attaining the learning goals easily. This situation is because the encouragement in learning which drives the students to perform all-out in a particular subject, accomplishing the subject according to the timeframe and be responsible throughout the course to meet the learning objectives. In other words, high learning motivation ensures the probability to improve the learning outcomes of the students in the subject mentioned above. This finding indicates that students with high learning motivation are more likely to enhance their academic performance, thus attaining the learning goals easily.

Keywords: motivation, learning outcomes, natural sciences

1. Introduction

Learning process correlates with teaching-learning activities in which the success of the process depends on the cooperation between lecturers and students. A lecturer is obliged to provide learning modules successfully; the students' learning motivation, however, is required to meet this condition. In this study, the learning motivation varies among students in the Department of Elementary Teacher Education in Natural

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Sciences course-some are able to maintain their focus and determined throughout the course, while the others are the opposite.

Motivation is essential in learning every subject, including the previously mentioned course; this component helps the students to attain the learning objectives. University students are driven by their mental strength to complete their study; the strength comes from their willingness, attention or dreams. This inner strength of mine also conceptualizes the students' learning motivation. Within the students' motivation are embedded different values, e.g. intention, hope, objective or target, and incentive. Student's needs are a product of imbalanced situation between everything a student own and everything that the student expects. A preliminary observation finds that the students who have problems in the subject of Natural Sciences somehow assume that their problem is because of poor learning motivation.

To attain maximum learning outcomes, the students should change their approaches or methods in learning; this can also be actualized by encouraging themselves to focus on satisfying the learning objectives for the Basic Concepts of Natural Sciences subject as among the subjects that demand high learning motivation. Being highly determined or motivated students is insufficient, considering several internal (factors that come from the student self) and external contributing factors of the students' motivation. The external factor mainly revolves around facilities (such as laboratory, literature, books, journal and magazines), compliments, rewards and other elements that can improve the learning motivation.

2. Method

This research was conducted in the Department of Elementary Teacher Education, Faculty of Education, Universitas Negeri Gorontalo. The population involved 202 students of the fourth semester; only 130 of the total population were selected as the research sample in this survey research. The variable involves the independent (exogenous) and dependent (endogenous) variable. The exogenous variable refers to learning motivation (represented by the letter X), while the students' learning outcomes are the endogenous variable (represented by the letter Y). The data were analyzed in two processes, namely descriptive analysis and inferential analysis. The descriptive analysis encompasses processes, such as displaying data through frequency distribution table, histogram, average and the standard deviation. Inferential analysis was done to test the research hypothesis; this type of analysis used a regression and correlation method. Prior to hypothesis testing, the normality of the data of the three variables was examined using the *Liliefors* test. Path analysis was also used in testing the hypothesis of this research.

3. Results and Discussion

This section provides information about the data, including the data of the learning outcomes (Y) as the endogenous variable, and the early knowledge (X).

Table 1: Description of Variables of the Study

Variable of Research	Total Item	Theoretical		Empirical	
		Minimum	Maximum	Minimum	Maximum
Learning Outcomes (Y)	25	25	125	20	84
Learning Motivation	27	27	135	47	94

Following the process of data collection in the research site was a statistical analysis phase. The result of this analysis reveals that the mean score arrives at 44.18 with the median (*me*) and mode at 40.83 and 34 respectively. The distribution of the frequency is displayed in a table; the result shows that the minimum score of nine classes gets 20 with the maximum score at 84. Furthermore, the range of the score is 64. Table 2 provides the detail of these outcomes.

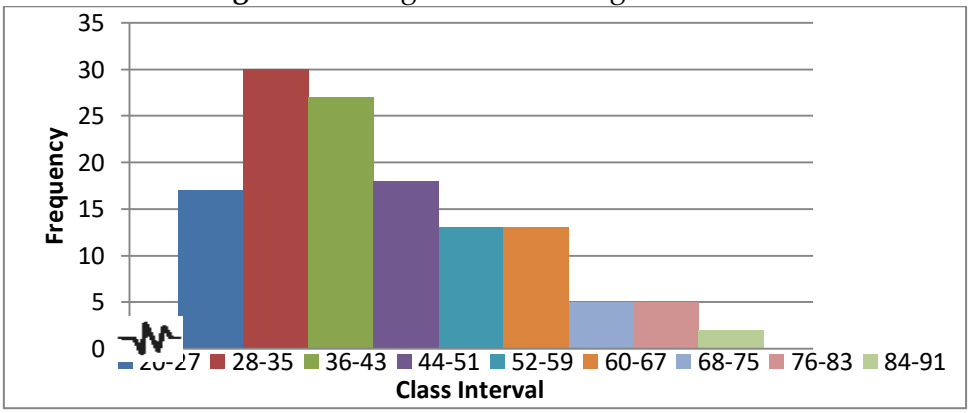
Table 2: Distribution of the Frequency of Students' Learning Outcomes

Interval Class	f_i	$f_{relative}$ (%)	x_i	$f_i.x_i$
20-27	17	13.08	23.5	399.5
28-35	30	23.08	31.5	945
36-43	27	20.77	39.5	1066.5
44-51	18	13.85	47.5	855
52-59	13	10.00	55.5	721.5
60-67	13	10.00	63.5	825.5
68-75	5	3.85	71.5	357.5
76-83	5	3.85	79.5	397.5
84-91	2	1.54	87.5	175
∑	**130**	**100**		**5743**

The table above explains that the distribution of the frequency of learning outcomes variable is skewed right or positively skewed. This is because of a greater average score and median than the mode. Moreover, the table reveals that 13 respondents (10%) are in the moderate category, while 41 respondents (70.78 %) are categorized above average. Those who fall under below average category dominates the total population with 76 respondents (19.22 %).

The score distribution of learning outcomes variable is depicted in the following Figure 1.

Figure 1: Histogram of Learning Outcomes



2. Learning Motivation

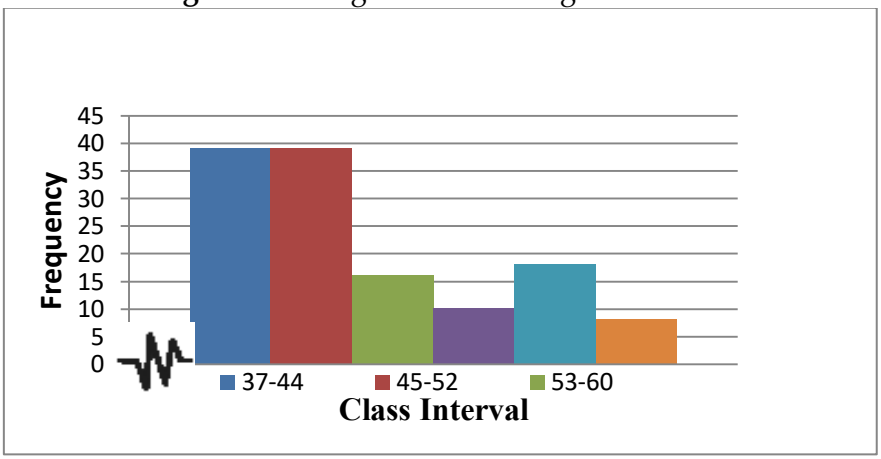
According to the result of statistical data analysis from the research site, the mean score arrives at 72.10 with the median (*me*) and mode (*mo*) at 73.05 and 82.23 respectively. The distribution of the frequency is displayed in the frequency table; the result shows that the minimum score of six classes gets 47 with the maximum score at 94. Furthermore, the range of the score is 47. Table 3 provides the detail of these outcomes.

Table 3: Distribution of the Frequency of Learning Motivation Score

Interval Class	f_i	$f_{relative}$ (%)	x_i	$f_i.x_i$
37-44	39	30.00	40.5	1579.5
45-52	39	30.00	48.5	1891.5
53-60	16	12.31	56.5	904
61-68	10	7.69	64.5	645
69-76	18	13.85	72.5	1305
77-84	8	6.15	80.5	644
Σ	130	100		6969

The table above explains that the distribution of the frequency of learning motivation variable is skewed right or positively skewed. This is because of a greater average score and median than the mode. In addition, the table reveals that 26 respondents (20%) are in the moderate category, while 78 respondents (60 %) are in the above-average category. Those who fall under below average category involve 26 respondents (20 %). The score distribution of the learning outcomes variable is illustrated in the following figure.

Figure 2. Histogram of Learning Motivation



The linear regression equation of the variable of students' learning outcomes and learning motivation is represented with a regression model Y against X_1: ($\hat{Y} = a + bx_2$) or -20.058 + 0.877 x_2. According to the result of the calculation, the value of F_{count} arrives at 143.97 at the significance level α = 005. From this result, the value of F_{table} is 3.91, signifying that F_{count} = 143.97 > F_{table} = 3.91; the regression equation is, therefore,

categorized very significant. The result of the equation also emphasizes that an increase in the variable of students' early knowledge is affected by 0.877 of the value of learning outcomes at a constant of -20.058.

Table 4: ANOVA of Linear Regression Test (Y against X)

Source Var.	JK	Df	RJK	F_{count}	F_{table}	
Total	271312.00	130	2087.01		α= 0.05	α= 0.01
Coefficient (a)	238139.20	1	238139.20			
Reg (a/b)	17560.26	1	17560.26	143.97	3.91	6.84
Residual (S)	15612.54	128	121.97			
Lack of Fit	6920.54	75	130.58	1.13	1.52	1.87
Error	8692.00	53	115.89			

Description: J_K = Total of Square; Df = Degree of Freedom; RJK = Average of Total of Quadrat

The second hypothesis explains that "learning motivation has a direct, positive influence on students' learning outcomes in Basic Concepts of Natural Sciences 2; it is statistically formulated as follows:

H_0 : $\beta_{y.2} \leq 0$
H_1 : $\beta_{y.2} > 0$

The hypothesis testing shows that $t_{count} > t_{table}$, meaning that the H_0 is refuted as the criteria of the rejection of this hypothesis is represented in the result of the testing at a significance level of α (0.05). From the calculation of the above equation 1, the coefficient of the path of exogenous variable, i.e. learning motivation is P_{y2}= 0.430, t_{count} = 5.49. The value of t_{table} measures at 1.645, meaning that the coefficient of the path is P_{y2} significant. With that being said, the direct, positive influence of learning motivation on students' learning outcomes in Basic Concepts of Natural Sciences 2 is of significant.

The regression equation

$$\hat{Y} = -20.058 + 0.877X_2$$

clarifies that an increase in the score of learning motivation variable, the students' learning outcomes in the previously mentioned subject is also improved. In other words, the higher the learning motivation, the more the students' learning outcomes increase. Another consideration highlighting the impact of learning motivation on learning outcomes is the value of path coefficient at 0.430, where the value of t_{count} = 5.49 > t_{table} = 1.645 at the significance level = 0.05. To put it simply, the H_0 is rejected and H_1 is accepted, and, thereby, the path coefficient between the learning motivation and students' learning outcomes in the Basic Concepts of Natural Sciences 2 is significant. This finding also underlines the direct, positive impact of learning motivation on students' learning outcomes in the subject.

On top of that, the finding suggests an ideal teaching-learning process specifically in educational institutions; the learning atmosphere should cultivate motivation in the students to actualize quality learning. Highly-motivated students are likely to enhance their academic performance. This condition will, in turn, help the learners to meet the learning goals because of the encouragement in learning. Encouragement drives the students to perform all-out in a particular subject, accomplishing the subject according to the timeframe and be responsible throughout the course to satisfy their objectives in learning.

3. Conclusions

This research concludes that "learning motivation has a direct, positive influence on students' learning outcomes in Basic Concepts of Natural Sciences 2. The students' learning motivation can be improved by enhancing the quality of learning activities which integrate the theoretical knowledge and hands-on experience throughout a particular course or subject. Conceptualizing such a condition can bring a unique experience in learning natural sciences.

Motivation in learning helps the students to process everything the students obtained from the course and to foster their initiative to study. This positive attitude functions to encourage the students of the Department of Elementary Teacher Education to perform all-out in a particular subject, accomplishing the subject according to the timeframe and be responsible throughout the course to satisfy their objectives in learning every subject or course, such as Basic concepts of Natural Sciences 2.

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References

Abdurrahman (2015). Guru IPA sebagai motivator, Media akademi, Yogyakarta.

Dalton S. S. (2017). Pengajaran yang efektif bagi semua pebelajar, Indeks, Jakarta.

Fatona, dkk (2014). Pembelajaran IPA, Ombak, Yogyakarta.

Grafura, Lubis, *et. al* (2016). 100 masalah pembelajaran, Ar-ruzz media, Yogyakarta

Gredler E. M. (2011). Learning and intruction teori dan aplikasi edisi keenam, Kencana prenada media group, Jakarta.

Ifenthaler D. (2011). Multiple Perspectives on Problem Solving and Learning in the Digital Age. Spinger. Germany.

Jihad, Asep, *et. al* (2012). Evaluasi pembelajaran, Multi pressindo, Yogyakarta.

Jufri W. (2013). Belajar dan pembelajaran IPA, Pustaka reka cipta, Bandung.

----------, (2017). Belajar dan pembelajaran IPA, Pustaka reka cipta, Bandung.

Mairingin P. J. (2017). Statistika pendidikan konsep & penerapannya menggunakan minitab dan Microsoft Excel, Cv. Andi Offset, Yokyakarta.

Pellegrino J. W. (2006). Rethingking and Redesigning Curriculum, Instruction and assessment: What Contemporary Research and Theory Suggests. National Center

Roschelle J. (1999). Prior Knowledge, Exploratorium, San Francisco.

Sagala S., (2010). Konsep dan makna pembelajaran, Alfabeta, Bandung.

Sanjaya W. (2008). Kurikulum dan pembelajaran Teori dan praktek pengembangan kurikulumcan tingkat satuan pembelajarn, Kencana, Jakarta.

Sardian (2014). Interaksi & Motivasi Belajar Mengajar, Raja Grafindo Persada, Jakarta

Santrock J. W. (1999). Lifespan development, McGraw-Hill, Boston.

Sary E. N. Y. (2015). Psikologi pendidikan, Parama publishing, Yogyakarta.

Slavin E. R. (2017). Psikologi pendidikan, Indeks, Jakarta barat.

----------, (2001). Educational Psychology, McGraw-Hill, Boston.

Suryabrata S. (1982). Psikologi Belajar, Departemen Pendidikan dan Kebudayaan, Jakarta.

Susanto A. (2013). Teori belajar dan pembelajaran di sekolah dasar, Kencana, Jakarta.